

Framework Biodiversity Management Plan

Blue Solar 2 & 3 Solar PV Projects, Albania

1. Introduction and Purpose

This Framework Biodiversity Management Plan (BMP) has been prepared for the Blue 2 and Blue 3 Solar PV Projects located in the Municipality of Fier, Albania. SPV Blue 2 Sh.p.k and SPV Blue 3 Sh.p.k (the Borrowers) is developing the Projects in Fier Municipality, Albania. The Project comprises Blue Solar 2 Phase 1 (64 MWp, operational), Blue Solar 2 Phase 2 (55 MWp, under construction), and Blue Solar 3 (43 MWp, pre-construction), together with associated infrastructure including substations, underground electrical connections, a 30 MW / 80.25 MWh Battery Energy Storage System (BESS), and a 3.8 km, 220 kV overhead transmission line (OHTL) connecting the facilities to the national grid.

Environmental and Social Impact Assessments (ESIAs), biodiversity baseline studies, Critical Habitat Assessments (CHAs) and an external environmental and social due diligence (ESDD) have been completed for both Projects. These works identified a range of biodiversity features of conservation importance associated with the wider project landscape, including Priority Biodiversity Features (PBFs), natural habitats, wetland habitats, coastal dune systems, drainage channels, and species of conservation concern.

The assessments concluded that biodiversity impacts are expected to be site-specific and manageable through implementation of appropriate mitigation, monitoring, and adaptive management measures. Additional seasonal avifauna surveys, strengthened biodiversity monitoring, and implementation of bird collision mitigation measures for the OHTL will be undertaken in accordance with the Environmental and Social Action Plan (ESAP).

This Framework Biodiversity Management Plan (BMP) has been prepared to support alignment with EBRD Environmental and Social Requirement 6 (ESR6) and to provide a high-level biodiversity management framework for the Project. The Framework BMP forms part of the Project Environmental and Social Management System (ESMS) and establishes the overarching biodiversity management commitments for the Project. It is supported by the previously completed Project ESIs, Critical Habitat Assessments (CHA), Biodiversity Action Plan (BAP), Environmental and Social Action Plan (ESAP), and other management plans prepared under the ESMS. Prior to completion of Blue Solar 2 Phase 2 and construction of Blue Solar 3, this Framework BMP will be expanded into a project-specific Biodiversity Management Plan. Where required, topic-specific management plans (e.g. Habitat Restoration Plan, Avifauna Monitoring Plan or OHTL Bird Collision Management Plan) will be prepared to support implementation of the commitments presented in this Framework BMP.

The purpose of this Framework BMP is to:

- Define the Project's biodiversity management commitments and approach
- Establish the application of the mitigation hierarchy (avoid, minimise, restore, and enhance);
- Identify key biodiversity survey, monitoring, and adaptive management requirements; and
- Define the framework for biodiversity management implementation during construction and operation.

This Framework BMP applies to Blue Solar 2, Blue Solar 3, the BESS facility, associated infrastructure, and the OHTL. The Framework BMP will guide the development of a detailed project-specific Biodiversity Management Plan prior to construction of Blue Solar 3 and completion of Blue Solar 2 Phase 2.

2. Biodiversity Context and Key Risks

The Project is located within a modified coastal landscape in Fier Municipality comprising agricultural land, disturbed grassland, drainage channels, saline habitats, and wetland features associated with the wider Karavasta coastal system. Blue Solar 2 partially overlaps the Karavasta Important Bird and Biodiversity Area (IBA/KBA), although not within the core wetland habitats, while Blue Solar 3 is located approximately 1.4 km from the designated area (Figure 1).

Biodiversity baseline studies and CHAs identified a range of possible critical habitats and priority biodiversity features (PBF) associated with the wider project landscape, linked to coastal and wetland habitats, drainage channels and temporary wetland features, and species of conservation concern associated with the Karavasta ecosystem. The EAAA includes potentially 17 CH qualifying species (Table 1), and 49 species and 2 habitats qualifying as PBFs (Table 2).

The OHTL represents the primary long-term avifauna impact driver (via collision) associated with the Project and will therefore be subject to targeted mitigation and monitoring measures, including installation of bird flight diverters and operational monitoring.

The Project commits to:

- Applying the mitigation hierarchy;
- Achieving No Net Loss of natural habitat values or Net Gain for critical habitat;
- Avoiding impacts to Priority Biodiversity Features wherever practicable;
- Implementing additional surveys and monitoring identified in the BAP;
- Implementing OHTL bird collision mitigation measures;
- Applying adaptive management where monitoring identifies unanticipated impacts.



Figure 1: Site Layout of the Blue 2 and Blue 3 Solar PV projects and Proximity to Designated Biodiversity Areas.

Table 1. CH-qualifying species identified for the project in EAAA

Species	IUCN / National status	IFC PS6 Criteria	CH status
Amphibians			
<i>Pelophylax shqipericus</i> Albanian Water Frog	VU / NE	1c, 2a	Confirmed
Birds			
<i>Pelecanus crispus</i> Dalmatian Pelican	NT/ CR	1c, 3a	Confirmed
<i>Microcarbo pygmaeus</i> Pygmy Cormorant	LC / CR	1c, 3a	Confirmed
<i>Squalius platyceps</i>	NT	2a, 3a	Likely
Fish			
<i>Barbus prespensis</i> Prespa barbell	LC	3a	Confirmed
<i>Acipenser naccarii</i> Adriatic sturgeon	CR	1a, 1c	Likely
<i>Anguilla anguilla</i> European Eel	CR	1a, 1c, 3a	Confirmed
<i>Alburnus scoranza</i>	LC	3a	Confirmed

Species	IUCN / National status	IFC PS6 Criteria	CH status
<i>Salmo dentex</i>	DD	3a	Possible
Insects			
<i>Buprestis splendens</i> Goldstreifiger	EN	1a	Possible
Plants			
<i>Orobanche hederæ</i> Ivy Broomrape	-	1c	Likely
<i>Pancratium maritimum</i> Sea daffodil	LC	1c	Likely
<i>Matthiola tricuspidata</i> . Three-horned Stock	-	1c	Likely
<i>Ephedra distachya</i> Joint Pine	LC	1c	Likely
<i>Hypericum perforatum</i> Perforate St.John's wort	LC	1c	Likely
<i>Glaucium flavum</i> Horned Poppy	LC	1c	Likely
<i>Ammophila arenaria</i> Marram Grass	-	1c	Likely

Table 2. Qualifying priority biodiversity features (PBF) identified for the project

Group	Priority Biodiversity Feature Species
Plants	Marram Grass (<i>Ammophila arenaria</i>), Joint Pine (<i>Ephedra distachya</i>), Sea-poppy (<i>Glaucium flavum</i>), Perforate St. John's Wort (<i>Hypericum perforatum</i>), Lesser Water-plantain (<i>Baldellia ranunculoides</i>), Three-horned Stock (<i>Matthiola tricuspidata</i>), Sea Daffodil (<i>Pancratium maritimum</i>)
Mammals	European Badger (<i>Meles meles</i>), European Polecat (<i>Mustela putorius</i>)
Birds	Eurasian Sparrowhawk (<i>Accipiter nisus</i>), Eurasian Skylark (<i>Alauda arvensis</i>), Common Kingfisher (<i>Alcedo atthis</i>), Tawny Pipit (<i>Anthus campestris</i>), Meadow Pipit (<i>Anthus pratensis</i>), Great Egret (<i>Ardea alba</i>), Grey Heron (<i>Ardea cinerea</i>), Squacco Heron (<i>Ardeola ralloides</i>), Common Pochard (<i>Aythya ferina</i>), Eurasian Stone-curlew (<i>Burhinus oedicephalus</i>), Greater Short-toed Lark (<i>Calandrella brachydactyla</i>), Kentish Plover (<i>Charadrius alexandrinus</i>), Western Marsh Harrier (<i>Circus aeruginosus</i>), Hen Harrier (<i>Circus cyaneus</i>), Montagu's Harrier (<i>Circus pygargus</i>), Greater Spotted Eagle (<i>Clanga clanga</i>), Syrian Woodpecker (<i>Dendrocopos syriacus</i>), Little Egret (<i>Egretta garzetta</i>), Lesser Kestrel (<i>Falco naumanni</i>), Common Moorhen (<i>Gallinula chloropus</i>), White Stork (<i>Ciconia ciconia</i>), Black-winged Stilt (<i>Himantopus himantopus</i>), Hoopoe (<i>Upupa epops</i>), Common Kestrel (<i>Falco tinnunculus</i>), Little Owl (<i>Athene noctua</i>), Short-eared Owl (<i>Asio flammeus</i>), Barn Owl (<i>Tyto alba</i>), Northern Lapwing (<i>Vanellus vanellus</i>), Yellow Wagtail (<i>Motacilla flava</i>), White Wagtail (<i>Motacilla alba</i>), European Bee-eater (<i>Merops apiaster</i>), European Roller (<i>Coracias garrulus</i>), Little Tern (<i>Sternula albifrons</i>), Gull-billed Tern (<i>Gelochelidon nilotica</i>), Collared Pratincole (<i>Glareola pratincola</i>)
Aquatic species	Chub (<i>Squalius platyceps</i>)

Habitats	Salix alba and Populus alba galleries, Salicornia and other annuals colonising mud and sand
----------	---

3. Biodiversity Management and Monitoring Framework

The biodiversity management and monitoring framework for the Project is summarised in this section. The Project will apply the mitigation hierarchy of avoidance, minimisation, and restoration, supported by adaptive management throughout the Project lifecycle in accordance with EBRD Environmental and Social Requirement 6 (ESR6) and international good practice. Biodiversity management measures must be integrated into the Project Environmental and Social Management System (ESMS), contractor management procedures, construction management plans, and operational procedures.

The biodiversity impact pathways identified through the ESIAs, CHAs, and ESDD, are presented in Table 3. To facilitate implementation and reporting, these impacts have been grouped into a series of biodiversity management themes, which form the basis of the Biodiversity Management and Monitoring Framework presented in Table 4.

Table 4 defines the key biodiversity management commitments for each management theme, including the applicable mitigation hierarchy measures, implementation requirements, monitoring and reporting obligations, responsibilities, and biodiversity performance objectives. The framework is intended to provide a clear line of sight between identified biodiversity risks, management actions, monitoring requirements, and accountability throughout the Project lifecycle.

Adaptive management triggers are presented in Table 5. These triggers establish the circumstances under which mitigation measures, monitoring programmes, or management approaches will be reviewed and, where necessary, revised in response to monitoring results, incident investigations, new biodiversity information, or unforeseen impacts.

Biodiversity monitoring results will be used to periodically review residual impacts and evaluate progress towards achieving the applicable biodiversity performance objective (No Net Loss or Net Gain). Where restoration, compensation or offset measures are required, an annual loss/gain assessment will be undertaken until biodiversity performance objectives have been demonstrated. Results will be incorporated into annual biodiversity monitoring reports and used to inform adaptive management.

Table 3. Biodiversity Impact Register

ID	Management Theme	Impact Pathway
H1	Habitat Protection and Restoration	Permanent habitat loss
H2		Temporary habitat disturbance
H3		Habitat degradation
H4		Loss of protected or sensitive vegetation

H5		Failure of habitat restoration
C1	Connectivity and Wildlife Movement	Habitat fragmentation and barrier effects
C2		Restriction of wildlife movement
W1	Wetland and Drainage Management	Disturbance to drainage channels
W2		Alteration of drainage patterns
W3		Degradation of temporary wetlands
W4		Sedimentation of aquatic habitats
W5		Water contamination
W6		Disturbance to Albanian Water Frog habitat
W7		Disturbance to other aquatic fauna
F1	Species Protection	Direct mortality of fauna during construction
F2		Disturbance to reptiles
B1	Avifauna and OHTL Management	Construction disturbance to birds
B2		Temporary displacement of birds
B3		OHTL collision risk
B4		OHTL electrocution risk
B5		Cumulative avifauna impacts
P1	Pollution Prevention and Biosecurity	Dust deposition on habitats
P2		Air emissions
P3		Noise impacts
P4		Lighting impacts
P5		Hazardous material spills
I1		Introduction of invasive alien plants
I2		Spread of invasive species through construction activities
G1	Monitoring, Adaptive Management and Governance	Inadequate ecological supervision
G2		Insufficient seasonal bird data
G3		Lack of operational biodiversity monitoring
G4		Failure to identify unexpected impacts

Table 4. Framework Biodiversity Management Plan

Impact ID(s)	Management Theme	Key Receptors ¹²	Project Phase	Mitigation Type	Mitigation Measure	Implementation Detail	Monitoring / Metrics	Link to relevant Plan	Reporting	Responsibility	PR6 Standard
H1-H5	Habitat Protection and Restoration	Natural habitats (<i>Salicornia</i> habitats, <i>Salix alba</i> and <i>Populus alba</i> galleries), coastal dune vegetation, CH and PBF plant species (Table 1 and 2)	Design, Construction, Operation	Avoid / Minimise / Restore	Habitat protection and rehabilitation	Minimise the project footprint; demarcate no-go areas; restrict vegetation clearance to approved areas; rehabilitate disturbed areas	Area disturbed versus approved footprint; rehabilitation success	Construction Environmental Management Plan (CEMP) Traffic management plan Erosion and Sediment Control Procedure Irrigation and Drainage Preservation Procedure Waste Management Plan Post-Construction Reinstatement and Vegetation Management Plan Invasive Species Management Plan	Monthly construction inspections ; annual biodiversity performance reporting.	SPV Blue, EPC Contractor, ECoW	NNL for natural habitats

1 Receptors present or potentially present in the footprint and wider area

Impact ID(s)	Management Theme	Key Receptors ¹²	Project Phase	Mitigation Type	Mitigation Measure	Implementation Detail	Monitoring / Metrics	Link to relevant Plan	Reporting	Responsibility	PR6 Standard
C1-C2	Habitat Connectivity and Wildlife Movement	PBF species listed in Table 1 and 2.	Design, Construction, Operation	Avoid / Minimise	Maintain habitat connectivity and reduce barrier effects	Incorporate wildlife-friendly fencing measures where practicable; avoid unnecessary internal barriers; maintain connectivity along drainage corridors and habitat features; review detailed design to minimise fragmentation and facilitate movement of terrestrial fauna.	Evidence of maintained connectivity; wildlife observations; wildlife entrapment or mortality incidents associated with fencing; inspection of fencing condition and functionality.	Post-Construction Reinstatement and Vegetation Management Plan Invasive Species Management Plan	Construction monitoring reports; annual biodiversity monitoring reports.	SPV Blue, EPC Contract or, Biodiversity Specialist	NNL for PBF species

Impact ID(s)	Management Theme	Key Receptors ¹²	Project Phase	Mitigation Type	Mitigation Measure	Implementation Detail	Monitoring / Metrics	Link to relevant Plan	Reporting	Responsibility	PR6 Standard
W1-W7	Wetland and Drainage Management	Temporary wetlands, drainage channels and aquatic habitats; Albanian Water Frog (CH); European Eel (CH); Prespa Barbel (CH); Adriatic sturgeon (CH); <i>Salmo dentex</i> (CH); Chub (PBF); Alburnus scoranza (PBF); wetland-associated biodiversity	Design, Construction, Operation	Avoid / Minimise / Restore	Protection of wetlands, drainage channels and aquatic habitats	Avoid encroachment into wetlands and drainage channels; maintain hydrological connectivity; demarcate sensitive features; restrict vehicle access; maintain water flow at crossings; implement erosion, sediment and pollution controls; undertake pre-construction wetland surveys; restore disturbed wetland and drainage habitats; control invasive species.	Condition of wetlands and drainage channels; evidence of erosion, sedimentation or altered drainage; pollution incidents; condition of aquatic habitats; amphibian/aquatic fauna observations where required; rehabilitation success; invasive species presence.	Post-Construction Reinstatement and Vegetation Management Plan Invasive Species Management Plan	Pre-construction wetland verification survey; monthly ECoW reports; monthly construction monitoring reports; annual biodiversity monitoring reports; incident reports.	SPV Blue, EPC Contract or, ECoW, Biodiversity Specialist	NNL for natural habitats NG for CH species

Impact ID(s)	Management Theme	Key Receptors ¹²	Project Phase	Mitigation Type	Mitigation Measure	Implementation Detail	Monitoring / Metrics	Link to relevant Plan	Reporting	Responsibility	PR6 Standard
F1-F2	Species Protection	CH and PBF species listed in Table 1 and 2.	Pre-construction, Construction, Operation	Avoid / Minimise	Protection of fauna during construction and operation	Undertake pre-construction ecological walkdowns; identify sensitive fauna habitats where required; implement ecological supervision during vegetation clearance; relocate fauna from active work areas where necessary; minimise open excavations and provide escape routes; implement speed limits and fauna awareness training; minimise disturbance during maintenance activities; record and investigate fauna mortality or injury incidents.	Completion of pre-construction surveys; fauna observations; fauna relocation records; fauna mortality incidents; compliance with ecological supervision requirements.	Biodiversity Management and Action Plan Injured Wildlife Protocol Invasive Species Management Plan Biodiversity Management Plan Biodiversity Action Plan	Pre-construction survey reports; monthly ECoW reports during construction; biodiversity monitoring reports during operation; incident reports.	EPC Contractor, ECoW, Biodiversity Specialist, SPV Blue	NNL for PBF species NG for CH species
B1-B5	Avifauna and OHTL Management	Waterbirds and migratory birds associated with the Karavasta IBA/KBA; Dalmatian Pelican (CH); Pygmy Cormorant (CH); qualifying PBF bird species (Table 2_	Construction, Operation	Minimise	Bird collision and disturbance mitigation	Install bird diverters, undertake seasonal avifauna surveys, implement operational collision monitoring.	Number of collisions; bird diverter condition; avifauna monitoring results.	Bird Fatality Monitoring program Biodiversity Management and Action Plan Injured Wildlife Protocol Biodiversity Management Plan Biodiversity Action Plan	Avifauna monitoring reports; annual biodiversity reports.	SPV Blue, Biodiversity Specialist	NNL for PBF species NG for CH species
P1-P5, I1-I2	Pollution Prevention and Biosecurity	All Priority Biodiversity Features (PBFs), Critical Habitat (CH) qualifying	Construction, Operation	Minimise	Pollution and invasive species management	Implement spill prevention, waste management, erosion controls and invasive	Number of incidents; invasive species observations.	Irrigation and Drainage Preservation Procedure; Waste Management Plan;	Monthly environmental reports;	EPC Contractor, SPV Blue	NNL for natural habitats and PBF species

Impact ID(s)	Management Theme	Key Receptors ¹²	Project Phase	Mitigation Type	Mitigation Measure	Implementation Detail	Monitoring / Metrics	Link to relevant Plan	Reporting	Responsibility	PR6 Standard
		species, natural habitats and designated biodiversity features				species management measures.		Invasive Species Management Plan	incident reports.		
G1-G4	Monitoring, Adaptive Management and Governance	All Priority Biodiversity Features (PBFs), Critical Habitat (CH) qualifying species, natural habitats and designated biodiversity features	All Phases	Monitor / Enhance	Monitoring and adaptive management	Biodiversity monitoring programme, corrective action tracking, periodic review of mitigation effectiveness.	Completion of monitoring programme; corrective actions closed out.	Biodiversity Management Plan Biodiversity Action Plan	Construction reports; annual biodiversity reports to lenders; ESMS reporting.	SPV Blue, Biodiversity Specialist	Supports NNL objectives

Table 5. Adaptive Management Triggers

Trigger	Potential Response
Repeated bird collision incidents on the OHTL, particularly involving species of conservation concern	Review effectiveness of bird diverters and implement additional avifauna mitigation measures
Evidence of degradation of drainage channels, temporary wetlands or aquatic habitats	Implement habitat restoration measures and review drainage management practices
Discovery of previously unrecorded sensitive species or habitats	Review construction activities and implement additional avoidance or protection measures
Establishment or spread of invasive alien species	Implement targeted control measures and increase monitoring frequency
Failure of rehabilitation areas to establish successfully	Undertake supplementary planting, erosion control and maintenance measures
Monitoring identifies biodiversity impacts greater than predicted in the ESIA or CHA	Review mitigation measures and update the project-specific BMP through the adaptive management process

